

Original article

An Examination of the Thinking Education Course Curriculum in Turkey within the Framework of Multidimensional Thinking

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Abstract

The aim of this study is to examine the Thinking Education Course Curriculum for Secondary Education (TECC) within the framework of Matthew Lipman's multidimensional thinking approach. The study examines the extent to which the learning outcomes and their explanations in TECC reflect the dimensions of critical, creative, and caring thinking. Directed content analysis, a qualitative research method, was used in the study, and the data were obtained through document analysis. The study's data source is TECC, which was developed in Turkey by the Board of Education and Discipline of the Ministry of National Education. In the coding process, Lipman's multidimensional thinking approach was taken as the basis, and keywords related to the dimensions of critical, creative, and caring thinking were identified. The findings reveal that critical thinking is clearly represented in TECC through reasoning, argument evaluation, fallacy detection, inference-making, analysis, evaluation, and self-criticism processes, and, in this respect, it strongly overlaps with the critical thinking dimension in Lipman's multidimensional thinking approach. Creative thinking was mostly associated with concept generation, product/text creation, and the evaluation of its importance in problem-solving. Caring thinking was represented through the relationship between thinking and morality, as well as the importance of moral values in decision-making. In line with these findings, it is recommended that the dimensions of creative and caring thinking be addressed more visibly and in a more balanced way in curriculum development studies.

Keywords: Multidimensional Thinking, Critical Thinking, Creative Thinking, Caring Thinking, Thinking Education, Curriculum.

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INTRODUCTION

Thinking is the conscious processing of experience to discover meaning (Lipman, 2003). Within this process, critical thinking analyzes the mind's productions, improving their quality (Paul & Elder, 2012/2019). For Ennis (1991), critical thinking is "reasonable reflective thinking focused on deciding what to believe or do" (p. 6). Ruggiero (2004/2017) defines it as "the process of testing claims and arguments to decide which are worthwhile and which are not" (p. 52). In this respect, critical thinking relies on cognitive skills such as interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione & Gittens, 2016). The quality of critical thinking depends on the criteria applied to these skills. Paul and Elder (2012/2019) identify clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness as standards for evaluation. In addition, critical thinking requires certain mental dispositions. Facione and Gittens (2016) state that a strong critical thinker possesses truth-seeking, open-mindedness, analyticity, systematicity, confidence in reasoning, inquisitiveness, and judiciousness. Ruggiero (2004/2017) emphasizes that a critical thinker is aware of personal limitations, bases judgments on evidence rather than preference, is willing to rethink views in light of new evidence, and is open to listening carefully to others' ideas.

In the literature, debates on teaching critical thinking focus on whether this skill is general or discipline-specific. The general approach holds that critical thinking skills and principles can be taught directly, independently of a specific subject area (Ennis, 1991). In contrast, McPeck (1990/2017) contends that critical thinking always takes place in relation to a particular subject and cannot be considered independently of the knowledge structure and criteria of the relevant discipline. Between these extremes, various instructional models have emerged. The infusion approach teaches critical thinking explicitly within subjects. The immersion approach develops these skills through discussion, group work, and problem-solving, without direct instruction (Prawat, 1991, as cited in Angeli & Valanides, 2009). These debates show that thinking skills should be applicable across different contexts. Internationally, creativity, critical thinking, and self-regulation have become key to individual success. There is international consensus on 21st-century skills (Fisser & Thijs, 2015). OECD's (2023) PISA in Focus report states that in 60% of education systems participating in PISA 2022, creative thinking is included in most primary-level courses, and a similar trend is observed at the secondary level. However, the depth of this integration, its classroom application, and its visibility in assessment remain contested (OECD, 2023). In this context, Lipman's multidimensional thinking approach is noteworthy because it addresses critical thinking together with creative and caring thinking and regards these dimensions as integral components of classroom inquiry practice.

In the multidimensional thinking approach, higher-order thinking emerges from the interaction of critical, creative, and caring thinking (Lipman, 2003). In this framework, critical thinking is understood as a criterion-based, self-correcting, and context-sensitive form of thinking. Reliance on criteria means grounding claims in reliable reasons. Self-correction involves recognizing and reviewing errors and

deficiencies in thinking. Context sensitivity means thinking in accordance with the conditions of the concrete situation. Creative thinking relates to producing meaning, making new connections, and reorganizing parts into a meaningful whole. Caring thinking represents the affective and value-oriented dimension of thinking. It involves caring, valuing, ethical sensitivity, and considering others' perspectives. This dimension, through its appreciative, affective, active/curatorial, normative, and empathetic aspects, shows that thinking is a process connected to values and relationships (Lipman, 1993, 1995, 2003).

In the multidimensional thinking model, the ultimate goal of education is to raise reasonable individuals who assume responsibility for their mental processes, have ethical sensitivity, can produce meaning, and have gained intellectual autonomy (Lipman, 1993, 1998). Accordingly, the school's task is to teach students how to make sense of knowledge and how to think with philosophical depth (Vansielegheem & Kennedy, 2011, p. 178). Studies conducted at the high school level show that critical thinking is related to analytical thinking (Demir, 2022) and problem-solving skills (Erdem & Genç, 2015). In addition, inquiry-based practices are stated to support social inclusion, active participation, and caring thinking among high school students (Leng, 2020). These findings show that it is important to address thinking skills as mutually supportive processes (Wei et al., 2026). Some studies in the literature reveal that high school students may experience difficulties, especially in higher-order cognitive processes such as self-control, making inferences, and evaluation (Hadi et al., 2018; Elisanti et al., 2018), and that classroom dialogues may remain within a dogmatic or absolutist framework and limit inquiry (Kosberg & Reffhaug, 2025). These difficulties indicate that, especially in traditional and exam-oriented education systems, critical and creative thinking cannot be adequately supported in classroom practice, even when targeted at the curriculum level. For example, in traditional educational environments such as those in Turkey and Bosnia-Herzegovina, curricula have been found to insufficiently encourage critical thinking, and knowledge is generally presented through a rote-learning approach (Bećirović et al., 2019). Similarly, in Malaysia, following low performance in PISA 2009, greater emphasis was placed on higher-order thinking skills in curricula (Abu Hassan et al., 2020). In Singapore, independent courses such as "Knowledge and Inquiry" have been included in the curriculum to address this problem (Tan, 2006). Thus, integrating critical, creative, and caring thinking into curricula through an interdisciplinary approach (Lipman, 2003) is necessary to support students' academic, social, and moral development. In the context of Turkey, the Thinking Education Course Curriculum for Secondary Education (TECC), which corresponds to this necessity, aims for students to develop awareness of the concept of thinking; use reasoning, inference, and argument construction skills; organize data and information; produce sufficient explanations for the phenomena and situations they encounter; carry out problem-solving and decision-making processes effectively; write coherent and grounded texts; and look critically at themselves, their experiences, their products, and social reality

(Ministry of National Education [MoNE], 2023, p. 9). Revealing the extent to which these skills targeted by TECC reflect Lipman’s multidimensional thinking approach is the main purpose of this study.

Several studies in Turkey have examined thinking skills and philosophy curricula at the high school level. While some of these studies focus on the relationships between students’ thinking skills and different variables (Demir, 2022; Erdem & Genç, 2015), others have examined philosophy course curricula in terms of critical thinking skills (Aslan, 2023; Bahadır & Berkant, 2021; Gül, 2026). However, no study has examined TECC within the framework of the multidimensional thinking approach across the dimensions of critical, creative, and caring thinking. Therefore, it is hoped that this study will contribute to curriculum development studies on thinking education and to discussions aimed at addressing thinking skills as a whole.

MATERIALS and METHODS

Research Design

In this study, directed content analysis, a qualitative research method, was used, and the data were obtained through document analysis. Document analysis is the systematic examination of written documents that contain information about the phenomenon under investigation (Yıldırım & Şimşek, 2013).

Data Source

The data source of the study is the Thinking Education Course Curriculum for Secondary Education (TECC), developed for the secondary education level in Turkey by the Board of Education and Discipline of the Ministry of National Education (MoNE). The curriculum was implemented as of the 2023–2024 academic year to be taught in science high schools implementing a special program (MoNE, 2023). According to the 2025 Weekly Course Schedule for Science High Schools Implementing a Special Program, the Thinking Education course is included within the scope of “Multidimensional Development Courses,” in the “Human, Society, and Science” elective course group, at the preparatory, 9th, and 10th grade levels (MoNE, 2025).

The core values that constitute the curriculum’s perspective are stated as justice, friendship, honesty, self-control, patience, respect, love, responsibility, patriotism, and helpfulness. The curriculum also includes eight key competences within the scope of the Turkish Qualifications Framework: literacy competence, multilingual competence, mathematical competence and competence in science, technology, and engineering, digital competence, personal, social, and learning to learn competence, citizenship competence, entrepreneurship competence, and cultural awareness and expression competence. The curriculum consists of 18 learning outcomes, 72 lesson hours, and 5 units. These are, respectively, “Thinking and Self-Efficacy,” “Reasoning and Argumentation,” “Data Organization and Explanation,” “Problem Solving and Decision Making,” and “Critical Thinking and Self-Criticism.” The first unit addresses basic philosophical and logical concepts; the second unit addresses reasoning,

argumentation, and fallacies; the third unit addresses data, information, knowledge, and explanation; the fourth unit addresses problem-solving and decision-making; and the fifth unit addresses critical thinking, critical reading and writing, and self-criticism. The curriculum states that, in terms of aims and learning outcomes, it parallels the content, aims, and methods of the philosophy course. In this direction, the integrated skills of interpretation and applying forms of reasoning within logical reasoning, philosophical text analysis within philosophical reasoning, and discussion and philosophical in-depth thinking within philosophical inquiry are included in the curriculum. In addition, higher-order thinking skills, including decision-making, problem-solving, and critical thinking, as well as conceptual integrated skills involving comparison, eliminating contradictions, and classification, are also included in the curriculum (MoNE, 2023).

Data Collection Process

In the study, first, the secondary education course schedules available on the website of the MoNE Board of Education and Discipline at <https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=1292> were accessed, and then TECC, which was included within the scope of the examination, was obtained from the MoNE website (MoNE, 2023).

Data Analysis

The data of the study were examined using the directed content analysis method. Directed content analysis is an approach used to conceptually validate, extend, and develop an existing theoretical framework or theory. In this approach, the analysis begins with initial codes derived from theory or relevant research findings; as the analysis progresses, new codes are developed for data that do not fit the existing scheme, and the scheme is reorganized. Thus, the findings contribute to deepening the theory by providing supporting or non-supporting evidence regarding the relevant theory (Hsieh & Shannon, 2005). In this study, the coding process was based on Matthew Lipman's multidimensional thinking approach; a keyword list was prepared in line with the dimensions of critical, creative, and caring thinking. In developing the keywords, the relevant literature was reviewed, and the code list was then reviewed in line with the expert's opinions in educational sciences. The keywords determined at the end of this process are shown in Table 1. TECC, downloaded from the MoNE website as a PDF (Portable Document Format), was examined in detail by the researcher; the learning outcomes in which the keywords appeared, along with the explanations related to these outcomes, were listed. Accordingly, when the keywords in the coding table were clearly included in the learning outcome or its explanation, they were marked directly. However, two issues gained importance in the analysis: First, since Lipman's thinking approach is based on higher-order thinking skills, the learning outcomes and explanations in TECC were examined in this direction; expressions reflecting higher-order cognitive processes and thinking skills, such as analyzing/resolving, inquiry, reasoning, evaluation, problem-solving, decision-making, and creative thinking, were evaluated. For example, the expression "It is explained with

examples why the problems encountered in daily life are seen as problems.” was addressed within the scope of “analyzing/resolving” and “justification/grounding” because it directs students to analyze the problem situation and justify why a situation is considered a problem. In contrast, the expression “Basic thinking acts (comprehension, understanding, judging/making a judgment) are explained.” was not included in the coding because it remained mostly at the level of explanation; in other words, it did not indicate a higher-order cognitive process. Second, even when keywords were not directly included in the learning outcome or its explanation, expressions indicating the relevant thinking skill or disposition were included in the analysis and coded. Thus, in the data analysis process, in addition to explicitly stated codes, relevant learning outcomes that gained meaning within the context were also evaluated.

Table 1. Keywords used in the study

Keywords		
analyzing/resolving	decision-making	openness to criticism
argument	discussion	problem-solving
assumption	evaluation	reasoning
causality	inquiry	self-correction
contradiction/inconsistency	judgment	thinking error/fallacy
creating/producing	justification/grounding	value
creative	making inferences	
critical	morality	

RESULTS

In this section, the learning outcomes and explanations for critical, creative, and caring thinking in TECC are presented by unit. The learning outcomes related to critical, creative, and caring thinking in the first unit of the curriculum are presented in Table 2.

Table 2. Learning outcomes related to critical, creative, and caring thinking in the first unit

Unit No and Name	Learning Outcome No	Learning Outcome	Explanation of the Learning Outcome	Main Theme	Code
Unit 1: Thinking and Self-Efficacy	1.1.	Explains the difference between thinking and other mental activities.	1. By explaining the meanings of words related to thinking (imagination, conception, contemplation, recollection, etc.), it is ensured that the similar and different aspects of these words are identified.	Critical thinking	Analyzing/resolving
			2. By ensuring the discussion of the question “What is the role of concepts in thinking?”, the importance of concepts in thinking is emphasized.	Critical thinking	Discussion, inquiry
	1.2.	Distinguishes thinking acts according to their types.	1. It is ensured that examples are given for the differences between basic thinking acts.	Critical thinking	Analyzing/resolving
			2. By focusing on different thinking acts [theoretical-practical thinking, higher-order thinking (problem solving and decision making, critical thinking, creative thinking, etc.)], it is ensured that examples of these acts from daily life are given.	Critical thinking/Creative thinking	Problem-solving, decision-making, critical, creative, evaluation
	1.3.	Evaluates the relationship between thinking and self-efficacy.	1. It is ensured that a text is written on the connection of thinking with “true belief” and “morality.”	Caring thinking/Creative thinking	Morality, creating/producing
			2. It is ensured that the relationship of self-efficacy and reactivity with freedom is evaluated.	Critical thinking	Analyzing/resolving, evaluation

According to Table 2, in the first unit, the learning outcomes and explanations related to critical thinking are based on the analysis and inquiry of cognitive processes. The learning outcome “*Explains the difference between thinking and other mental activities.*” was considered within this scope. The task of identifying the similar and different aspects of words related to thinking, such as imagination, conception, and contemplation, was evaluated with the code “analyzing/resolving” because it requires concepts to be separated into their structural elements. The same learning outcome was also considered with its explanation: “*By ensuring the discussion of the question ‘What is the role of concepts in*

thinking?’, the importance of concepts in thinking is emphasized.” Since this explanation directs the student to make judgments and exchange ideas, it was included within the scope of critical thinking with the codes “discussion” and “inquiry.”

In the learning outcome *“Distinguishes thinking acts according to their types.”* in the unit, focusing on the differences between basic thinking acts was associated with the code “analyzing/resolving” because it indicates a cognitive separation process. The learning outcome *“Evaluates the relationship between thinking and self-efficacy.”* was considered together with the expression *“It is ensured that the relationship of self-efficacy and reactivity with freedom is evaluated.”* This expression was included in the critical thinking theme with the codes “analyzing/resolving” and “evaluation” because it requires addressing and evaluating the relationship between these concepts.

In the unit, some cognitive actions emphasized the simultaneous use of critical and creative thinking. Accordingly, the learning outcome *“Distinguishes thinking acts according to their types.”* was considered together with its explanation: *“By focusing on different thinking acts [theoretical-practical thinking, higher-order thinking (problem-solving and decision-making, critical thinking, creative thinking, etc.)], it is ensured that examples of these acts from daily life are given.”* The concretization of higher-order thinking acts, such as problem-solving, decision-making, and creative thinking, through daily life examples was evaluated under the themes of critical and creative thinking with the codes “problem-solving,” “decision-making,” “critical,” “creative,” and “evaluation,” because it involves addressing these processes in a multidimensional way and developing innovative perspectives.

In the first unit, caring thinking gained visibility, especially through ethical values and original production processes. The learning outcome *“Evaluates the relationship between thinking and self-efficacy.”* was considered together with the explanation *“It is ensured that a text is written on the connection of thinking with ‘true belief’ and ‘morality.’”* This explanation combines value-oriented content with a productive activity. This explanation was associated with the code “morality” (caring thinking) for including ethical awareness, and with the code “creating/producing” (creative thinking) for requiring the creation of an original text.

In summary, the findings in the first unit reveal that thinking comes to the fore with the themes of critical, creative, and caring thinking through the conceptual framework of thinking, the distinction of thinking types, and self-efficacy components, and that the unit also addresses the act of thinking as a critical and value-oriented responsibility (caring).

Table 3. Learning outcomes related to critical, creative, and caring thinking in the second unit

Unit No and Name	Learning Outcome No	Learning Outcome	Explanation of the Learning Outcome	Main Theme	Code
Unit 2: Reasoning and Argumentation	2.1.	Explains the role of concepts in the thinking process.	1. The relationship between concepts is explained, and it is ensured that the given concepts are arranged schematically according to their relationships with one another.	Critical thinking/Creative thinking	Analyzing/resolving, creating/producing
			2. It is ensured that concepts in different languages that are not represented by a word in Turkish are researched, and that Turkish words reflecting the events, phenomena, situations, objects, and emotions represented by these concepts are produced.	Creative thinking	Creating/producing
	2.2.	Distinguishes propositions according to their characteristics.	1. It is ensured that factual judgments and judgments containing value are classified.	Critical thinking	Judgment, analyzing/resolving
			2. It is ensured that the truth, consistency, contingency, and contradiction of propositions are determined in terms of semantics.	Critical thinking	Contradiction/inconsistency, evaluation
	2.3.	Classifies different types of reasoning according to the way of reaching a conclusion from premises.	1. It is ensured that the validity and soundness of the given examples of reasoning are checked.	Critical thinking	Reasoning, evaluation
			2. By explaining types of reasoning, it is ensured that different examples of reasoning are grouped.	Critical thinking	Reasoning, analyzing/resolving
	2.4.	Evaluates arguments in terms of validity.	1. By explaining the concept of argument, it is ensured that whether the given examples of arguments are valid or not is determined.	Critical thinking	Argument, evaluation
			2. It is ensured that examples of argument-based speeches from daily life are prepared.	Critical thinking/Creative thinking	Argument, creating/producing
	2.5.	Examines the effect of fallacies and rhetorical traps in reasoning.	1. By collecting information on types of fallacies and rhetorical traps, it is ensured that a product (presentation, poster, magazine, etc.) is created from examples belonging to these fallacies and rhetorical traps.	Critical thinking/Creative thinking	Thinking error/fallacy, creating/producing

When Table 3 is examined, it is evident that the unit focuses on judgment, reasoning, and evaluation; in this respect, its basis is critical thinking. In the learning outcome “*Distinguishes propositions according to their characteristics.*” and its explanations, the classification of factual judgments and judgments containing value was associated with the codes “judgment” and “analyzing/resolving” because it requires separation according to the quality of the data. In the same outcome, the determination of the truth, consistency, and contradiction of propositions was examined

within the scope of critical thinking under the codes “contradiction/inconsistency” and “evaluation,” because it directs the student to a logical checking process.

The learning outcome “*Classifies different types of reasoning according to the way of reaching a conclusion from premises.*” and its explanations were analyzed with the codes “reasoning,” “analyzing/resolving,” and “evaluation,” because they require students to distinguish forms of reasoning and evaluate the inferences put forward through the grouping of reasoning examples and the examination of these examples in terms of validity/soundness. A similar approach was also seen in the outcome “*Evaluates arguments in terms of validity.*” The process of explaining the concept of argument and determining the validity of examples was directly included in the critical thinking theme with the codes “argument” and “evaluation.”

In the unit, creative thinking is addressed at the level of concept production. The learning outcome “*Explains the role of concepts in the thinking process.*” was considered with the following explanation: “*It is ensured that concepts in different languages that are not represented by a word in Turkish are researched, and that Turkish words reflecting the events, phenomena, situations, objects, and emotions represented by these concepts are produced.*” This explanation was coded directly within the scope of creative thinking with the code “creating/producing” because it requires an original mental effort.

In the second unit, it was determined that critical and creative thinking were associated with the processes of schematizing knowledge, argument construction, and identifying erroneous forms of thinking. In this direction, the learning outcome “Explains the role of concepts in the thinking process.” was again considered together with its explanation: “*The relationship between concepts is explained, and it is ensured that the given concepts are arranged schematically according to their relationships with one another.*” This explanation requires the processes of schematically arranging the relationships between concepts, analyzing/resolving the data (“analyzing/resolving”), and presenting it in a new structure (“creating/producing”). Similarly, the learning outcome “*Examines the effect of fallacies and rhetorical traps in reasoning.*” was considered together with its explanation: “*By collecting information on types of fallacies and rhetorical traps, it is ensured that a product (presentation, poster, magazine, etc.) is created from examples belonging to these fallacies and rhetorical traps.*” In this explanation, creating a product from examples of fallacies was evaluated under the themes of critical and creative thinking with the codes “thinking error/fallacy” and “creating/producing,” because it emphasizes the combination of critical awareness with a productive output.

As a result, the findings in the second unit show that the themes of critical and creative thinking gain prominence in the processes of resolving logical structures and constructing arguments. In addition, no findings were identified under the main theme of caring thinking in this unit.

Table 4. Learning outcomes related to critical, creative, and caring thinking in the third unit

Unit No and Name	Learning Outcome No	Learning Outcome	Explanation of the Learning Outcome	Main Theme	Code
Unit 3: Data Organization and Explanation	3.1.	Uses methods of organizing data and information in different thinking processes.	1. Data and information organizing techniques are emphasized. It is ensured that the given data and information are organized with these techniques.	Critical thinking	Analyzing/resolving
			2. It is ensured that the given incomplete data and information are completed.	Critical thinking	Making inferences, reasoning
			3. By addressing the causal links between data and information, it is ensured that the relationship between correlation and causal link is examined.	Critical thinking	Causality, analyzing/resolving, inquiry
			4. By focusing on the concepts of prediction and confirmation bias, it is ensured that a text examining the errors caused by confirmation bias is written.	Critical thinking/Creative thinking	Thinking error/fallacy, creating/producing
	3.2.	Distinguishes explanations according to their types.	1. By focusing on understanding and explanation, it is ensured that the given different examples of explanation are classified according to their types (causal explanation, hypothetical-deductive explanation).	Critical thinking	Causality, assumption, analyzing/resolving, reasoning
	3.3.	Evaluates an explanation in terms of its adequacy.	1. It is ensured that the difference between adequate and inadequate explanations is analyzed. 2. It is ensured that the importance of creative thinking in the explanation process is questioned.	Critical thinking Critical thinking/Creative thinking	Analyzing/resolving, evaluation Creative, inquiry

As shown in Table 4, in the third unit, critical thinking is based on data organization, inference processes, and logical classification. The learning outcome “*Uses methods of organizing data and information in different thinking processes.*” was considered together with its explanation: “*Data and information organizing techniques are emphasized. It is ensured that the given data and information are organized with these techniques.*” Since this explanation requires the structural separation of knowledge, it was associated with the code “analyzing/resolving.” The second explanation of the same learning outcome states: “*It is ensured that the given incomplete data and information are completed.*” The task of completing the missing data was analyzed under the codes “making inferences” and “reasoning” because it aims to reach new conclusions based on the available information. Another explanation of the same learning outcome states: “*By addressing the causal links between data and information, it is ensured that the relationship between correlation and causal link is examined.*” This

explanation was included in the critical thinking theme with the codes “causality,” “analyzing/resolving,” and “inquiry,” because it prompts questioning of the nature of these relationships.

The learning outcome “*Distinguishes explanations according to their types.*” was considered together with its explanation: “*By focusing on understanding and explanation, it is ensured that the given different examples of explanation are classified according to their types (causal explanation, hypothetical-deductive explanation).*” This expression was analyzed with the codes “causality,” “assumption,” “analyzing/resolving,” and “reasoning,” because it requires the examination of explanations in terms of cause-effect relationships and assumption-based inferences. The learning outcome “*Evaluates an explanation in terms of its adequacy.*” was considered together with its explanation: “*It is ensured that the difference between adequate and inadequate explanations is analyzed.*” Since this explanation requires making a judgment on the quality of a claim, it was included within the scope of the critical thinking theme with the codes “analyzing/resolving” and “evaluation.”

In the third unit, it was determined that critical and creative thinking were integrated in the context of overcoming cognitive obstacles and questioning cognitive processes. Indeed, the learning outcome “*Uses methods of organizing data and information in different thinking processes.*” was considered together with its explanation: “*By focusing on the concepts of prediction and confirmation bias, it is ensured that a text examining the errors caused by confirmation bias is written.*” In this explanation, the task of writing a text examining the errors caused by confirmation bias requires both identifying a thinking error (“thinking error/fallacy”) and presenting this awareness in an original product (“creating/producing”). At this point, although the codes do not appear directly in the learning outcome, they were determined based on the pattern of meaning in the explanation section. In addition, the learning outcome “*Evaluates an explanation in terms of its adequacy.*” was considered together with its explanation: “*It is ensured that the importance of creative thinking in the explanation process is questioned.*” This explanation was examined under both themes, using the codes “creative” and “inquiry,” to assess the value of a concept.

As a result, these findings show that the third unit emphasizes data-driven analytical/critical processes and uses creative production as a tool to overcome cognitive biases. No data related to the theme of caring thinking were encountered in the unit.

Table 5. Learning outcomes related to critical, creative, and caring thinking in the fourth unit

Unit No and Name	Learning Outcome No	Learning Outcome	Explanation of the Learning Outcome	Main Theme	Code
Unit 4: Problem Solving and Decision Making	4.1.	Applies the stages of problem solving in the solution	1. It is explained with examples why the problems encountered in daily life are seen as problems.	Critical thinking	Analyzing/resolving, justification/grounding
			2. By explaining the stages of problem solving, it is ensured that the stages of problem solving	Critical thinking	Problem-solving, reasoning, evaluation

	of problems.	are applied in the solution of a sample problem. 3. The importance of creative thinking in problem solving is emphasized. By conducting research on creative problem solutions from Turkish history, it is ensured that the importance of creative thinking in problem solving is evaluated.	Critical thinking/Creative thinking	Problem-solving, creative, evaluation
4.2.	Carries out the decision-making process effectively.	1. The importance of moral values in decision-making is emphasized. It is ensured that the decision-making process regarding a problem within the scope of applied ethics is carried out and that the decision made is evaluated in terms of its possible consequences.	Critical thinking/Caring thinking	Decision-making, morality, value, evaluation

When Table 5 is examined, it is seen that critical thinking in the fourth unit is shaped through the definition of problems, the checking of solution stages, and the rational decision-making process. In this direction, the learning outcome “*Applies the stages of problem solving in the solution of problems.*” was considered together with its explanation: “*It is explained with examples why the problems encountered in daily life are seen as problems.*” Since this explanation requires a problem to be separated into its structural parts and a logical basis to be presented, it was evaluated using the codes “analyzing/resolving” and “justification/grounding.” In the same learning outcome, the explanation “*By explaining the stages of problem solving, it is ensured that the stages of problem solving are applied in the solution of a sample problem.*” was analyzed within the scope of the critical thinking theme under the codes “problem-solving,” “reasoning,” and “evaluation,” because it emphasizes the systematic execution of a cognitive process and the evaluation of the appropriateness of the result obtained.

In the fourth unit, creative thinking functions as a complementary element in the problem-solving process. Accordingly, the learning outcome “*Applies the stages of problem solving in the solution of problems.*” was considered together with its explanation: “*The importance of creative thinking in problem solving is emphasized. By conducting research on creative problem solutions from Turkish history, it is ensured that the importance of creative thinking in problem solving is evaluated.*” Since this explanation assesses the quality of creative problem solutions and recognizes original approaches, it was addressed under the themes of critical and creative thinking, with the codes “problem-solving,” “creative,” and “evaluation.”

In the fourth unit, the decision-making process takes on an ethical dimension. Accordingly, the learning outcome “*Carries out the decision-making process effectively.*” was considered together with its explanation: “*The importance of moral values in decision-making is emphasized. It is ensured that the decision-making process regarding a problem within the scope of applied ethics is carried out and*

that the decision made is evaluated in terms of its possible consequences.” Since this explanation addresses the rational judgment process with a value-oriented responsibility and reviews possible consequences, it was examined under the themes of critical and caring thinking, using the codes “decision-making,” “morality,” “value,” and “evaluation.”

In summary, these findings reveal that the fourth unit addresses problem-solving and decision-making processes together with the dimensions of creative thinking and moral evaluation.

Table 6. Learning outcomes related to critical, creative, and caring thinking in the fifth unit

Unit No and Name	Learning Outcome No	Learning Outcome	Explanation of the Learning Outcome	Main Theme	Code
Unit 5: Critical Thinking and Self-Criticism	5.1.	Carries out the critical thinking process in accordance with its stages.	1. The stages of the critical thinking process are explained. It is ensured that the critical thinking process is carried out in accordance with its stages on a determined topic.	Critical thinking	Critical, inquiry, reasoning
	5.2.	Reads a text with a critical perspective.	1. By explaining text reading methods (scanning, skimming, critical reading, note-taking, summarizing, etc.), it is ensured that these methods are applied on a given text.	Critical thinking	Critical, analyzing/resolving
			2. By addressing the stages of the text reading process, it is ensured that a sample text is read using the stages of the text reading process and interpreted with a critical perspective.	Critical thinking	Critical, evaluation
	5.3.	Writes a text with a critical perspective.	1. By focusing on determining the thesis to be defended in the text, organizing one's ideas effectively, and the formal requirements of the text (sectioning, quoting, giving footnotes/endnotes, preparing a bibliography, choosing a typeface), the process of writing a critical text is explained.	Critical thinking/Creative thinking	Argument, justification/grounding, critical, creating/producing
	5.4.	Evaluates social life with a critical perspective.	1. It is ensured that the actions of manipulation (direction) and perception management seen in social life are questioned with a critical perspective by associating them with the concepts of advertising, media, propaganda, and	Critical thinking	Critical, inquiry, analyzing/resolving

		persuasion, and anachronism (chronological inconsistency).		
		2. It is ensured that the social consequences of fallacies dominating persuasion processes are discussed with examples from daily life.	Critical thinking	Thinking error/fallacy, discussion, reasoning
5.5.	Develops forms of thought and behavior that are suitable for the characteristics of critical thinking and open to self-criticism.	1. It is ensured that time management techniques are applied for one week in order to be able to make self-criticism and that the changes occurring at the end of this process are noticed. 2. By focusing on the importance of criticizing and being criticized through the Johari window application, it is ensured that the distance between the ideal self and the real self is noticed.	Critical thinking Critical thinking	Self-correction Openness to criticism, self-correction

According to Table 6, in the fifth unit, critical thinking is presented through the management of cognitive processes, critical reading and writing strategies, and the analysis of social events. The learning outcome “Carries out the critical thinking process in accordance with its stages.” was considered together with its explanation: “*The stages of the critical thinking process are explained. It is ensured that the critical thinking process is carried out in accordance with its stages on a determined topic.*” This explanation was associated with the codes “critical,” “inquiry,” and “reasoning” because carrying out the critical thinking process in accordance with its stages is based on a rational mental process.

The learning outcome “*Reads a text with a critical perspective.*” was considered together with its explanation: “*By explaining text reading methods (scanning, skimming, critical reading, note-taking, summarizing, etc.), it is ensured that these methods are applied on a given text.*” Since the application of text reading methods aims at the structural separation of the text, this explanation was associated with the codes “critical” and “analyzing/resolving.” Another explanation of the same learning outcome states: “*By addressing the stages of the text reading process, it is ensured that a sample text is read using the stages of the text reading process and interpreted with a critical perspective.*” The critical interpretation activity, carried out using the stages of the text reading process, was analyzed under the codes “critical” and “evaluation” because it involves making a judgment about the quality of the claims in the text. The learning outcome “*Evaluates social life with a critical perspective.*” was considered together with its explanation: “*It is ensured that the actions of manipulation (direction) and perception management seen in social life are questioned with a critical perspective by associating them with the concepts of*

advertising, media, propaganda and persuasion, and anachronism (chronological inconsistency).” In this explanation, questioning manipulation and perception management processes by associating them with concepts such as media and propaganda was addressed with the codes “critical,” “inquiry,” and “analyzing/resolving.” Another explanation of the same learning outcome states: *“It is ensured that the social consequences of fallacies dominating persuasion processes are discussed with examples from daily life.”* This explanation was addressed within the scope of critical thinking with the codes “thinking error/fallacy,” “discussion,” and “reasoning,” in terms of including the identification of erroneous inferences and mutual exchange of ideas.

In the unit, it was determined that creative thinking functioned in the context of constructing a critical thesis. Accordingly, the learning outcome *“Writes a text with a critical perspective.”* was considered together with its explanation: *“By focusing on determining the thesis to be defended in the text, organizing one’s ideas effectively, and the formal requirements of the text (sectioning, quoting, providing footnotes/endnotes, preparing a bibliography, choosing a typeface), the process of writing a critical text is explained.”* This explanation combines the task of presenting a rational argument with the act of creating an original written product. This process was examined through the themes of creative and critical thinking, using the codes “argument,” “justification/grounding,” “critical,” and “creating/producing.”

At the final stage of the curriculum and the unit, critical thinking becomes an internal control mechanism in which individuals make their own mental and behavioral processes the objects of inquiry. The learning outcome *“Develops forms of thought and behavior that are suitable for the characteristics of critical thinking and open to self-criticism.”* was considered together with its explanation: *“It is ensured that time management techniques are applied for one week in order to be able to make self-criticism and that the changes occurring at the end of this process are noticed.”* This explanation was associated with the code “self-correction,” one of the basic components of critical thinking, because it aims to enable students to subject their own actions to rational scrutiny. Another explanation of the same learning outcome states: *“By focusing on the importance of criticizing and being criticized through the Johari window application, it is ensured that the distance between the ideal self and the real self is noticed.”* This explanation envisages the student developing cognitive transparency. In this process, the importance of being criticized was emphasized under the theme of critical thinking, with the code “openness to criticism,” because it requires external feedback to be accepted in a reasonable manner. The person’s re-evaluation of their thought structure in response to this feedback was coded as “self-correction.” These findings show that the curriculum positions critical thinking as a higher-order thinking practice in which students continuously develop and correct their own thinking.

DISCUSSION

The aim of this study is to reveal the extent to which TECC represents the dimensions of critical, creative, and caring thinking included in Matthew Lipman's multidimensional thinking model.

The study's findings showed that the critical thinking dimension is central to TECC, as reflected in learning outcomes such as argument evaluation, fallacy detection, and inference checking. This aligns with Aslan's (2023) study, which emphasizes the role of high school philosophy group courses in Turkey in developing critical thinking skills. For instance, Aslan found that 61.1% of the learning outcomes in the 10th-grade philosophy curriculum were directly related to critical thinking. Additionally, Gül (2026) revealed that critical thinking skills are frequently included at the levels of basic approaches, specific objectives, learning outcomes, field skills, and learning-teaching practices in the secondary education philosophy course curriculum prepared in 2024 and implemented in the 2025–2026 academic year. Expressions such as evaluation, inference, inquiry, comparison, reasoning, consistency, decision-making, and analysis, which stand out in Gül's study, also overlap with the critical thinking codes identified in TECC. In this respect, the clear representation of critical thinking in TECC parallels the emphasis on critical thinking skills in current secondary education curricula in Turkey. This study's findings also align with Lipman's approach to reasoning as a process of ordering and coordinating what is found through inquiry and extending and organizing what has been discovered or invented while retaining its truth (Lipman, 2003, p. 184). Learning outcomes in the curriculum, such as making inferences, examining causal links, and distinguishing types of explanation, reinforce the rule-guided structure of thinking (Lipman, 2003).

According to Lipman, these rules are the basic mechanisms that give critical thinking a self-correcting structure (Lipman, 1995, 2003). The transformation of a mental action into a real inquiry depends on the person's noticing errors in their own thinking and demonstrating the will to improve it (Lipman, 1993, 2003). The general structure of TECC can be said to include a gradual process of self-correction. At the beginning of the curriculum, distinguishing thinking from other mental activities helps students understand thinking more consciously and develop awareness of their own thinking processes. This situation parallels Lipman's emphasis on clarifying concepts and thinking about thinking in the inquiry process (Lipman, 2003). Fallacy detection and validity checking in the second unit contribute to students' noticing the errors in their own reasoning and evaluating their inferences more consistently (Lipman, 1995, 2003). The Johari window and self-criticism practices at the end of the curriculum can be associated with Lipman's educational understanding that accepts fallibility, which has an important place in the ideal of being reasonable, by enabling students to notice their own limitations, errors, and aspects open to development (Lipman, 1998, 2003). Studies in the literature also show that addressing critical thinking together with reasoning, analysis, and inquiry processes in the curriculum is pedagogically meaningful. Kilby (2025) revealed that philosophical inquiry practices have a large effect on critical thinking capacity ($d = 0.89$). Similarly, Tian et al. (2026) reported that critical thinking

education significantly improves students' analytical abilities and truth-seeking dispositions. Wei et al. (2026) show that critical thinking dispositions are related to logical reasoning and problem-solving processes. In the context of Turkey, Demir (2022) found that high school students' analytical thinking skills explained 57% of the variance in their critical thinking dispositions, and Erdem and Genç (2015) found that there was a significant and positive relationship between high school students' problem-solving and critical thinking skills ($r = .397$). These findings suggest that integrating critical thinking with reasoning, analysis, and problem-solving within TECC provides a framework that supports higher-order thinking skills. Despite the strong foundation TECC offers in critical thinking, the study by Bećirović et al. (2019) found that high school students' critical thinking skills in Turkey and Bosnia-Herzegovina were at their lowest level in the final year of high school. This decline indicates that the learning outcomes in the curriculum may be insufficient to meet the thinking needs of students in the upper grades or that teacher support may be inadequate. At the same time, the same study states that educators tend to view students in the upper grades as more independent learners and to provide them with less intellectual support. In addition, as emphasized in Tan's (2006) study, the exam-oriented educational understanding that intensifies in the final years of high school and forces students into error-correction practice aimed solely at finding the correct answer hinders critical inquiry.

According to the findings, in TECC, creative thinking is generally made visible in functional contexts such as producing alternatives in problem-solving processes or creating original texts. According to Lipman, creative thinking is a dimension that goes beyond the rule-guided structure and focuses on meaning construction and self-transcendence (Lipman, 1993, 1995, 2003). When evaluated from this perspective, the fact that creative thinking is included in the curriculum mostly as an element supporting problem-solving and production processes corresponds only partially to the meaning-producing function that Lipman attributes to creative thinking. Indeed, the literature indicates that high school students' creative thinking skills remain low, particularly in the dimensions of flexibility and originality. Sugiyanto et al. (2018) and Türkmen and Sertkahya (2015) revealed in their studies that current educational processes do not sufficiently support creative thinking. These findings show the importance of addressing creative thinking in curricula as a dimension encompassing the processes of meaning construction, making original connections, and developing diverse perspectives. On the other hand, findings from the study by Fisser and Thijs (2015) revealed that although teachers consider 21st-century skills such as creative thinking important, the curriculum does not provide teachers with sufficient guidance and encouragement, and this causes practices to lose focus and lack continuity.

According to Lipman, caring thinking is an affective-cognitive capacity that treats emotions as cognitive judgments and focuses on the value dimension of thought (Lipman, 1995, 2003). In TECC, the dimension of caring thinking has a theoretical counterpart, particularly in learning outcomes that include moral awareness and ethical decision-making. In this context, at the beginning of the curriculum, the emphasis on the connection of thinking with true belief and morality (learning outcome 1.3) can be

associated with Lipman's approach, which defines caring thinking as "thinking in values." Within the scope of this learning outcome, directing the student to the process of constructing a moral text overlaps with Lipman's appreciative dimension of caring thinking. Caring about what is moral and producing a text about it requires regarding moral principles as valuable in terms of their qualities (Lipman, 2003). On the other hand, the learning outcome in Unit 4 that emphasizes the importance of moral values in decision-making (4.2) aligns with the active/curatorial and normative dimensions of caring thinking defined by Lipman. When evaluated in this manner, the fact that moral values guide decisions and are preserved with a sense of responsibility can be associated with the form of active thinking that Lipman likens to a curator preserving a valuable work (Lipman, 1995, 2003). Indeed, in this process, the student demonstrates cognitive effort to maintain the principles they value while reasoning (Lipman, 2003). The practice of making a decision about a problem within the scope of applied ethics by considering what "ought to be" and evaluating the consequences of this decision (learning outcome 4.2) reflects the normative character of caring thinking, which relates what exists to what is ideal. Lipman argues that caring thinking develops especially within a community of inquiry through valuing others' ideas and establishing empathy (Kennedy, 2012). Zulkifli and Hashim (2020) showed that philosophical community of inquiry (P4C) practices in high school moral education courses significantly increased students' levels of critical and caring thinking. Leng (2020), on the other hand, found that this process supports social inclusion and active participation among high school students. The findings from this study reveal that this dimension is not represented as clearly as critical thinking, but is represented more implicitly and in a limited way. The fact that the dimension of caring thinking occupies less space in TECC than critical thinking can also be associated with certain educational conditions outside the curriculum. Indeed, in the study conducted by Abu Hassan et al. (2020), teachers' obligation to complete the curriculum within a certain period and insufficient lesson hours were identified as external factors that hinder the emergence of environments conducive to in-depth thinking. In summary, external limitations such as the dominant educational understanding, teacher workload, and lack of time may make it difficult for thinking processes that require mutual listening, discussion of different views, and the construction of common meaning to develop in the classroom.

Conclusion

According to Lipman, who sees thinking as a matter of balance, higher-order thinking occurs when the critical, creative, and caring dimensions interact in a balanced way (Lipman, 2003). In Turkey, when TECC, as a curriculum prepared for thinking education at the secondary education level, is evaluated in terms of Lipman's multidimensional thinking approach, it offers a strong foundation in the critical thinking dimension, but represents creative thinking mostly as a functional element supporting problem-solving and production processes, and caring thinking indirectly through ethical awareness and moral decision-making. Therefore, in future curriculum development studies, it is recommended that creative thinking be made more visible as a thinking dimension encompassing the processes of meaning

construction, developing original perspectives, and making new connections. Similarly, it is important for caring thinking to find a place in curricula by being associated with students' skills of valuing others' ideas, establishing empathy, and thinking together. In this direction, it is recommended that thinking education be extended across different courses and learning processes at the high school level through an interdisciplinary approach in which the dimensions of critical, creative, and caring thinking are integrated in a balanced way.

Additional Declaration

Author Contributions

The author confirms sole responsibility for the study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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In this study, artificial intelligence tools were used only for language editing and grammar correction. The author takes full responsibility for the content of the manuscript.

Conflicts of Interest

The authors declare that there are no conflicts of interest related to the publication of this study.

Ethics Approval

In all processes of this study, the principles of Pen Academic Publishing Research Ethics Policy were followed.

This study does not require ethics committee approval as it does not involve any direct application on human or animal subjects.

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